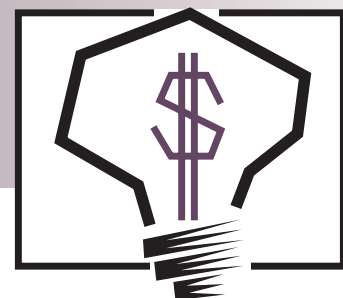


INVENTIONS & INNOVATION

Success Story



PORTABLE WASTEWATER FLOW-METERING DEVICE

Reduces Sewage Treatment Plant Costs and Energy Use

Benefits

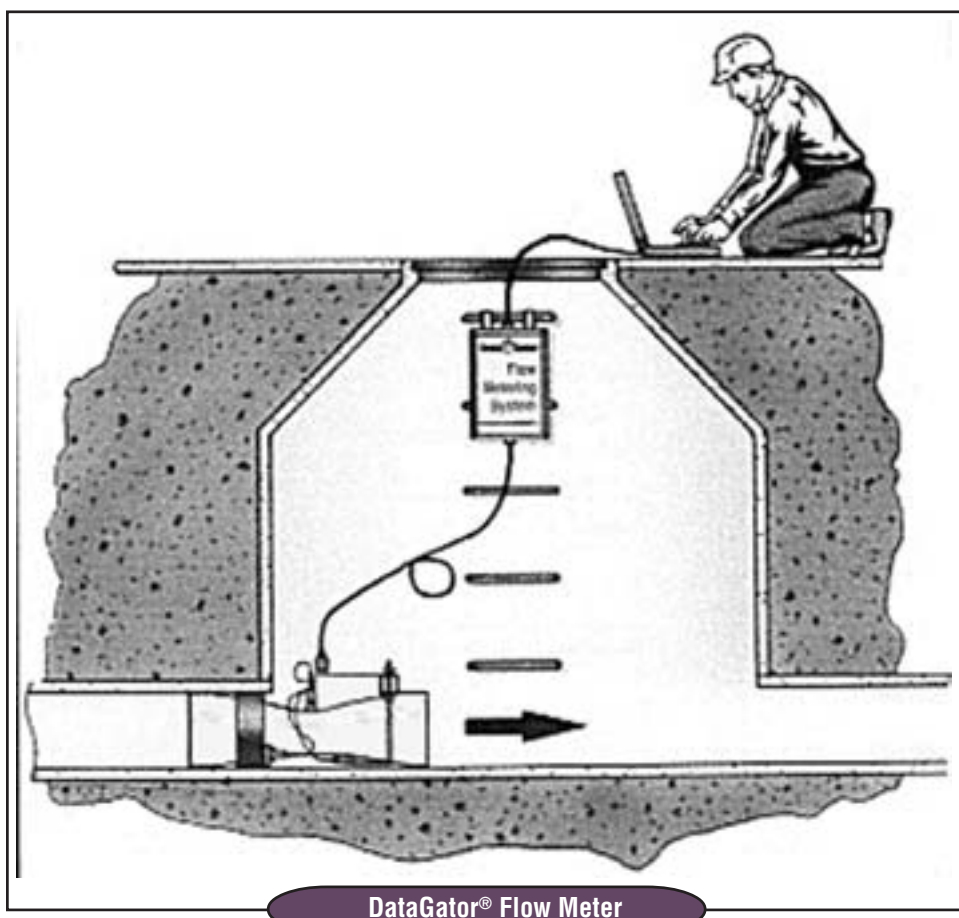
- ◆ Saves energy and dollars by identifying sources of inflow and infiltration
- ◆ Installs easily and is fully portable and precalibrated
- ◆ NIST traceable accuracy
- ◆ Offers greater accuracy than any other sewer flow meter on the market

Applications

Sewer flow monitoring under all flow conditions:

- ◆ Sewer system evaluation surveys
- ◆ Industrial monitoring
- ◆ Inter-district billing
- ◆ Discharge permit billing
- ◆ Lift station metering

Sewer systems develop settled manholes, cracked joints or pipes, and other defects susceptible to groundwater and surface water infiltration. Inflow, such as stormwater, directly enters the sewer system through direct connection to the sanitary sewer pipe. Infiltration and inflow reduce the sewer system capacity and increase wastewater treatment costs because of the increased volume to be treated. In some cases, the additional water flowing into the system can cause the sewer line to overflow and potentially cause health or environmental problems. Identifying the causes of inflow and infiltration as they occur or preventing problems before they happen greatly reduces sewage treatment costs to the community.



Technology Description

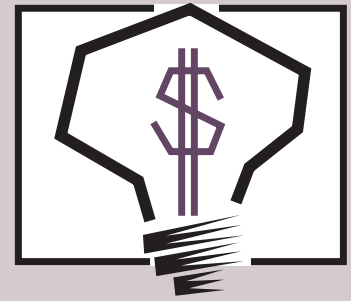
The DataGator Flow Meter System is a submersible flow metering device that can be installed in sewer lines to determine infiltration and inflow. Inventor Robert Hunter of Yellowstone Environmental Science, Inc., developed the first version of the DataGator Flow Meter System for wastewater flow metering with assistance from the Inventions and Innovation Program. DataGator combines a precalibrated flow tube with strategically positioned pressure transducers to accurately and reliably measure flow in sewage pipelines. This flow meter operates under all flow conditions (e.g. partially filled or full pipe, submerged, and even reverse flow). Error factors are as low as 3% at open channel and full pipe flow operating conditions compared with 10% and higher for area-velocity flow meters.

System Economics and Market Potential

The Product is manufactured in the U.S. and sold worldwide by Renaissance Instruments, Inc., Austin, Texas. Several hundred flowmetering devices have been sold to date. DataGators are used by municipal utility authorities and industrial wastewater treatment personnel in the U.S., Canada, Japan, Mexico, and India.

The major market for the flow meter is in municipalities for infiltration and inflow studies, capacity studies, and sewer flow monitoring for billing purposes. By identifying and mitigating sources of infiltration and inflow, municipalities save energy by reducing sewer pumping requirements. Money is also saved from not having to provide treatment capacity for infiltrated water. Costs for operating a small sewage treatment plant can exceed several hundred thousand dollars per year.

This flow metering system offers greater performance accuracy than any other sewer flow meter on the market. Typically, the flow meter is placed in a sewer line in a manhole to collect flow data for several days or weeks and then moved to another location. Hence, ease of installation is a very important feature. Another small, but rapidly emerging application, is monitoring the volume of industrial discharges into municipal sewer systems or waterways.



The Inventions and Innovation Program works with inventors of energy-related technologies to establish technical performance and to conduct early development. Ideas that have significant energy-savings impact and market potential are chosen for financial assistance through a competitive solicitation process. Technical guidance and commercialization support are also extended to successful applicants.

For project information, contact:

Dr. Raj Natarajan

or

Greg Albrecht

Renaissance Instruments, Inc.

2555 North IH-35

Suite 300

Round Rock, TX 78664

Phone: (512) 388-9270

Fax: (512) 388-9722

info@renaissance-instrument.com

Home Page:

www.yestech.com/renaissance

For more information about the Inventions and Innovation Program, contact:

Lisa Barnett

Program Manager

Inventions and Innovation Program

U.S. Department of Energy

1000 Independence Avenue SW

Washington, D.C. 20585-0121

Phone: (202) 586-2212

Fax: (202) 586-7114

lisa.barnett@ee.doe.gov

Visit our home page at

www.oit.doe.gov



Order # I-OT-310

February 2002